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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/627,694	07/28/2000	Alan N. Houghton	MSKP026US2	3599

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EXAMINER	
HARRIS, ALANA M	

ART UNIT	PAPER NUMBER
1642	

DATE MAILED: 04/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/627,694	Applicant(s) HOUGHTON ET AL.	
	Examiner Alana M. Harris, Ph.D.	Art Unit 1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31,33-37 and 40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *31 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The finality of the action mailed April 22, 2002 has been withdrawn and PROSECUTION IS HEREBY REOPENED. A new action is set forth below.

2. Claims 31, 33-37 and 40 are pending.

Claims 34-37 and 40, drawn to non-elected inventions are withdrawn from examination.

Claims 31 and 33 are examined on the merits.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Maintained Rejection

Claim Rejections - 35 USC § 103

4. The rejection of claims 31 and 33 under 35 U.S.C. 103(a) as being unpatentable over Houghton et al. (Annals New York Academy of Sciences 690:59-38, August 12, 1993), in view of Ausubel et al. (Referenced on IDS, page 2, Paper number 4) is maintained. Claims 29, 30 and 32 have been cancelled.

Applicants argue that "the Examiner has not established a *prima facie* case of obviousness, nor has the Examiner given proper credit to evidence of the properties of the claimed invention." Additional arguments are that "...nothing would direct the person skilled in the art to think of insect cell expression systems" and "contrary to the

Examiner's assertion, Ausubel does not teach a great likelihood of obtaining biologically active products, but rather ...that the system may not work for all proteins and experimentation will be necessary to determine if the system will work for a particular protein". These essential disagreements appear on pages 3-5 of the Brief.

With respect to Applicants' argument that proper credit has not been given to evidence of properties (i.e. Example 1 and Example 3), Appellants have not provided any unique or unexpected properties and therefore absent unexpected results, the production of a known desirable and cloned polypeptide by using an art-standard mass-production system like the instant baculovirus system remains *prima facie* obvious. Examples 1 and 3 do not provide astounding or unexpected results that would have dissuaded one of ordinary skill in the art from arriving at the claimed invention given Prasad et al. (Biology of Reproduction 52: 1167-1178, 1995) provides evidence that the expression of recombinant proteins in insect cells enhances the immunogenicity of the said proteins, see page 1168, column 1, sentence before "Materials..." section. Prasad further establishes enhanced immune responses could be due to the glycosylation of proteins within the Sf9 system or some protein from the Sf9 cells may be associating with the protein of interest as to break autoimmune tolerance, see page 1176. It stands to reason that one of ordinary skill in the art would have been motivated to combine the teachings of both references arriving at the claimed invention with a reasonable expectation of success given the state of the prior art.

The prior art provides motivation to establish the case of *prima facie* obviousness. The Houghton reference sets forth that studies of immunogenic tumor

antigens such as gp75 provide the basis for experiments within the field of tumor immunology. Immunogenic tumor antigens such as gp75 are defined as "unique" antigens expressed by tumor cells but not by normal cells or independently derived tumors, see abstract on page 59. In effect researchers have capitalized on unique immunogenic tumor antigens and noted their use in tumor immunotherapy.

Furthermore, the Houghton reference does teach that gp75 is a homologue of the mouse brown locus protein as stated by Appellants on page 4, first paragraph. This fact is predicated upon gp75's ability of being cloned. Notwithstanding, the reference also declares that the "gp75 is a tissue-specific antigen expressed in melanocytes", see page 64, last sentence of first paragraph. Accordingly one of ordinary skill in the art would be motivated to mass produce a protein deemed useful as a tool for experimentation with a reasonable expectation of success. Ausubel states "[b]aculoviruses have emerged as a popular system for overproducing recombinant proteins in eukaryotic cells", see page 16.8.1, column 1, first sentence. "[T]he baculoviral expression system uses a helper-independent virus that can be propagated to high titers in insect cells...making it possible to obtain large amounts of recombinant protein with relative ease", see page 16.8.1, column 1, first paragraph. There is a reasonable expectation of success of producing increased amounts of an antigen interest in a highly regarded expression system such as the baculoviral system and utilizing the produced protein for experimentation.

Applicants present Bouchard et al. (Exhibit A) a reference, which "...describes expression of human tyrosinase cDNA in mouse fibroblasts". Applicants further assert

the said reference "...teaches...whether melanosomal proteins in general are expressable at all in mammalian cells which lack melanosomes". Notwithstanding, Bouchard does concern a different protein its teachings do not preclude one of ordinary skill in the art from or dissuade one from implementing the teachings of Houghton and Ausubel in order to mass-produce a protein, such as gp75. Houghton presented the impetus for one of ordinary skill in the art to increase the yield of the gp75 tumor antigen. Houghton acknowledged "[a] fundamental tenet of tumor immunology is that immune responses against cancer are capable of rejecting tumors. Experimental systems have demonstrated that immunotherapy of cancer is more likely to be effective against immunogenic tumors...[suggesting] that rational strategies for immunotherapy can be built on immunization schemes with well-characterized tumor antigens", see first paragraph of page 59. One of ordinary skill in the art would recognize that an antigen of interest, particularly gp75 could be used as a diagnostic tool due to its tissue specificity. That fact in itself is motivation for producing increased amounts of gp75 in an effective expression, such as the baculoviral expression system. Ausubel contemplates preparation of large scale production of recombinant proteins. This art recognized eukaryotic expression system's popularity can be attributed to its potentially high protein expression levels. Taking advantage of the system's large-scale insect cell multiplicity inevitably there is high production of recombinant proteins. Absent any evidence contrary to the facts that the baculovirus expression system lends itself to increased propagation of a protein of interest and the said protein would be produced, modified

and processed one of ordinary skill in the art would be motivated to combine the teachings of Houghton and Ausubel.

Houghton discloses a human gp75 differentiation antigen derived from the human melanoma cell line, SK-MEL-19 expressed in the non-human cell line, mouse L cells (see page 65, "The gp75 Antigen..." section). Houghton does not teach a non-human cell line, wherein the cell line is an insect cell line.

However, Ausubel teaches the preparation of insect cell cultures and expression of proteins, such as a human tyrosinase differentiation antigen in insect cells using baculoviral expression systems. It would have been *prima facie* obvious to one of ordinary skill in the art at would have been motivated to do so with a reasonable expectation of success by teachings in both, Houghton and Ausubel. The Houghton reference provides the basis that gp75 can be cloned. Ausubel affirms the great likelihood of obtaining biologically active products from such methods and host cells due to the baculovirus' efficient promoter strategy and the high infection rate of insect host cells. Ausubel also sets forth that the baculoviral expression system transfected within insect cells yields a significant amount of the protein of interest, which is capable of being cloned, screened, isolated and purified. Furthermore, based on the state of the prior art one of ordinary skill in the art would have been motivated to do so with a reasonable expectation of success because it is art known that sources of altered antigen can induce effective immune responses and this in and of itself is not an unexpected property or an unexpected result.

New Grounds of Rejection

Double Patenting

5. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

6. Claims 31 and 33 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 13-17 of prior U.S. Patent No. 6,328,969 (December 11, 2001). This is a double patenting rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alana M. Harris, Ph.D. whose telephone number is (571)272-0831. The examiner works a flexible schedule, however she can normally be reached between the hours of 6:30 am to 5:30 pm with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on (571) 272-0787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ALANA M. HARRIS, PH.D.
PRIMARY EXAMINER

Alana M. Harris, Ph.D.
07 April 2005